1. POPOV, V. M., Engr., SHABAROV, A. M., Engr., GUSHCHIN, A. I., Engr.

2. SSSR (600)

4. Furnaces

7. Experience in operating muffle burners in shaftmill furnaces. Rab. energ. 2 No. 2, 1952

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

ALYSHBAYEV, D.A., nauchn. sotr.; GUSHCHIN, A.F., nauchn. sotr.; ABDURAKHMANOV, I., nauchn. sotr.; MEL'NIKOV, A.A., nauchn. sotr.; DRUKER, B.A., nauchn. sotr.; IMANALIYEV, M., nauchn. sotr.; YESIPOV, N.S., otv. red.; SEMIKINA, T.F., red.izd-va; POPOVA, M.G., tekhn. red.

[Prospects for the development and distribution of the most important branches of the Kirghiz industry] Perspektivy razvitiia i razmeshcheniia vazhneishikh otraslei promyshlennosti Kirgizii. Frunze, Izd-vo AN Kirg.SSR, 1963. 154 p.
(MIRA 16:7)

1. Akademiya nauk Kirgizskoy SSR Frunze. Institut ekonomiki.
2. Institut ekonomiki AN Kirg.SSR (for all except Yesipov, Semikina, Popova).
(Kirghizistan--Industries, Location of)

GUSCHIN, V.I., inzhener.

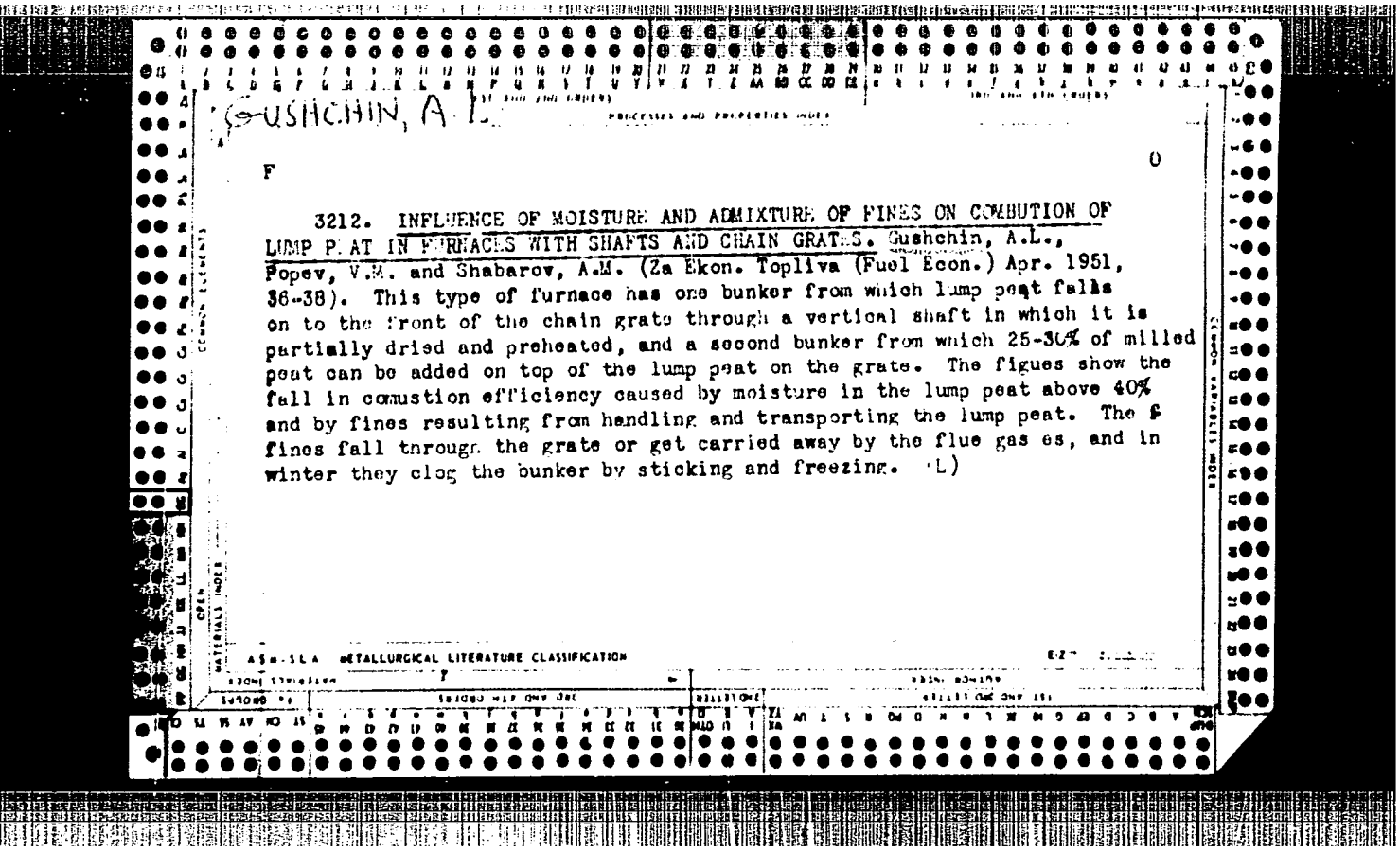
Scaling the brick lining of boiler installations. Energetik 5 no.6:10 Je '57. (MLRA 10:7)
(Boilers)

GUSHCHIN, A.I., inzhener.

Automatic counters for recording the usage of equipment. Vest.mash. 33 no.11:93-96 N '53. (MLRA 6:12)
(Counting devices) (Machine-shop practice)

GUSHCHIN, A.I. (Moskva)

Determining the blood color index in dogs. Pat.fiziol. i eksp.terap. 3 no.6:71-73 N-D '59. (MIRA 13:3)
(HEMOGLOBIN chemistry)



GUSHCHIN, A. L.

F 0

3212. INFLUENCE OF MOISTURE AND ADMIXTURE OF FINES ON COMBUTION OF LUMP PEAT IN FURNACES WITH SHAFTS AND CHAIN GRATES. Gushchin, A.L., Popev, V.M. and Shabarov, A.M. (Za Ekon. Topliva (Fuel Econ.) Apr. 1951, 36-38). This type of furnace has one bunker from which lump peat falls on to the front of the chain grate through a vertical shaft in which it is partially dried and preheated, and a second bunker from which 25-30% of milled peat can be added on top of the lump peat on the grate. The figues show the fall in comustion efficiency caused by moisture in the lump peat above 40% and by fines resulting from handling and transporting the lump peat. The fines fall through the grate or get carried away by the flue gases, and in winter they clog the bunker by sticking and freezing. (L)

KONDRASHOV, M.V.; GUSHCHIN, A.I., inzh.-lesomeliorator;
ANAN'YEVA, Z.M., master-lesomeliorator

Plague of tree shelterbelts. Put' i put.khoz. 5 no.5:29 My '61.
(MIRA 14:6)

1. Stantsiya Stalingrad, Privolzhskoy dorogi. 2. Nachal'nik Stalingradskoy distantsii Privolzhskoy dorogi (for Kondrashov).
(Windbreaks, shelterbelts, etc.--Frost damage)

GUSHCHIN, A. N.

USSR/Electronics - Time measuring

Card : 1/1

Authors : Gushchin, A. N., Eng. of the LONIIS (Leningrad Branch Research, Scientific Institute of Communications

Title : A device for measuring the time required for closing or opening the armature of a relay.

Periodical : Vest Svyaz, 5, 28 - 29, May 1954

Abstract : Described is a time measuring device designed at the Leningrad Branch of the Scientific Research Institute of Communications. This device permits the time required for closing or opening a relay armature to be measured. It can measure up to 1 microsecond. The construction of such a device is so simple that it can be done at any laboratory. Diagrams.

Institution : ....

Submitted : ....

GUSHCHIN, A.N.

USSR/ Electronics - Telephone communication

Card 1/1 Pub. 133 - 6/18

Authors : Gushchin, A. N., Engineer (LONIIS)

Title : Artificial lines for testing the impulse relay performance of automatic telephone stations

Periodical : Vest. svyazi 2, 11 - 12, Feb 1955

Abstract : An artifical line arrangement is described which, when testing the impulse relay of automatic telephone stations or in laboratory conditions, makes it possible to produce conditions equivalent to the real working conditions of the relay over natural cable lines. During grounding of the center point the artificial line arrangement can also be used for testing impulse relays, which are transmitted by galvanic methods over a single wire communications line. The circuit diagram of the arrangement is described. Diagrams; grephs.

Institution: .....

Submitted: .....

GUSHCHIN, ANATOLIY NIKOLAYEVICH

N/5
653.021
.G9

!Skazheniya Impul'sov Nabora Nomera Na Dekadno-Shagovykh ATS (Altering Of Impulses In Obtaining A Number On Decimal-Pitch Telephone Stations)
Moskva, Svyaz'Izdat, 1957.
52, (4) p. Illus., Diagers., Tables.
"Literatura": p. 54.

[redacted], A.V. [redacted]

[redacted] Stratigraphy of Upper Ordovician sediments in the eastern part of the Western Fergana Range (southern basin). Izv. vys. ucheb. zav.; geol. i razv. 8 no.[redacted]33 S '65. (MIRA 18:9)

1. Vsesoyuznyy aerogeologicheskiy trest.

Gushchin, K.D.

25(0) PHASE I BOOK EXPLOITATION SOV/1884

Leningrad. Inzhenerno-ekonomicheskiy institut.

Nekotoryye voprosy ekonomiki mashinostroyeniya (Some Problems on the Economics of Machine-building) [Leningrad] 1957. 176 p. (Series: Its: Trudy, vyp. 18) Errata slip inserted. 2,025 copies printed.

Eds. (Title page): S.A. Volkov, A.B. Yel'yashevich, V.V. Novozhilov, and L.L. Shayovich; Ed. (Inside book): M.U. Slizhis; Tech. Ed.: Ye.A. Pul'kina.

PURPOSE: These articles are intended for engineers and economists of machine-building plants and planning institutes, as well as for students of engineering and economics.

COVERAGE: This volume consists of eight articles on the economics of machine building. L.L. Shayovich discusses indexes as aids in determining specialization and cooperation levels, and in estimating efficiency when planning enterprises for the production of special goods. Ya.L. Mirkin discusses specialization in the production of equipment for specific purposes. He criticizes the state of production of auxiliary equipment in the precision instrument industry, points out the main trends of concentration and specialization, and analyzes methods for planning the

Card 1/4

dimensions of plants specializing in the manufacture of dies. L.M. Lukashevich introduces a classification for general purpose fittings, and discusses trends in standardizing the basic components of fittings and in designating the technological processes which will aid in organizing the production of fittings on the conveyer principle. B.D. Gushchin suggests a classification of automatic conveyer lines, and analyzes methods for selecting suitable and economic conveyer lines. T.N. Fokina, K.I. Yakuta, and E.V. Teterin consider economic aspects in the production of turbine blades, in the electrospark machining of dies, and in the production of castings according to cast models. M.I. Orlova discusses the effect of volume production on shop expenditures. The authors based their studies on Soviet sources, referring only once to an English source. References accompany each article.

TABLE OF CONTENTS:

Some Problems of the Economics (Cont.) SOV/1884

Orlova, M.I. [Candidate of Economic Sciences]. Relationship Between Shop Expenditures and Production Volume (using machine-building plants as an example) 149

AVAILABLE: Library of Congress

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9-15-59

Card 4/4

GUSHCHIN, B.D., inzh.-ekonomist

Methods for selecting a version of an automatic machine-tool line. Trudy LIEI no.18:75-99 '57. (MIRA 12:9)
(Factory management)

[illegible], T., [illegible].

Cotton

Soviet varieties of cotton plants in an irrigated zone and problems of selection. Khlopkovodstvo, no. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, Jan. 1952 ~~1953~~, Uncl.

1. TERESHKIN, G.: GUSHCHIN, B.

2. USSR (600)

4. Cotton - Armenia

7. Work in cotton breeding in the Azerbaijan and Armenian S. S. R. Khlopkovodstvo, no. 12, 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

ALEKSANDROV, A.S., kandidat sel'skokhozyaystvennykh nauk; VARUNTSYAN, I.S., akademik; GUSHCHIN, B.F., agronom; MEDNIS, M.P., kandidat sel'skokhozyaystvennykh nauk; SOKOLOV, F.A., kandidat sel'skokhozyaystvennykh nauk; LEGOSTAYEV, V.M., kandidat sel'skokhozyaystvennykh nauk; CHUVAKHIN, V.S., entomolog; CHUMANOV, Yakov Ignat'yevich, doktor sel'skokhozyaystvennykh nauk [deceased]; CHELYSHKIN, Yu.G., redaktor; VESKOVA, Ye.I., tekhnicheskiy redaktor

[Cotton growing] Khlopkovodstvo. Pod red. IA.I.Chumanova i V.S. Chuvakhina. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1956. 407 p.
(Cotton growing) (MLRA 10:9)

GUSHCHIN, B.F.; LYUBIMOV, M.A.

[Practices of cotton growers participating in the All-Union Agricultural Exhibition] Opyt khlopkorobov-uchastnikov VSKHV. Moskva, Gos.izd-vo selkhoz lit-ry, 1958. 67 p. (MIRA 12:4)
(Cotton growing)

SADYKOV, Akram Sadykovich; KRAVETS, Isay Abramovich; GUSHCHIN, B.F., otv. za vypusk; BLYUKHER, R.S., red.; PECHENKIN, I.V., tekhn.red.

[Checkrow cultivation of cotton] Kvadratno-gnezdovoe vozdelyvanie khlopchatnika. Moskva, Izd-vo M-va sel'skogo khoz.SSSR, 1959. folder, 7 p. (MIRA 13:6)

1. Vystavka dostizheniy narodnogo khozyaystva SSSR. (Cotton growing)

GUSHCHIN, B.V.; KLIMENKO, S.M.

Electron microscopic autoradiography. Vop. virus. 10 no.4: 387-396 Jl-Ag '65. (MIRA 18:8)

1. Institut virusologii imeni D.I. Ivanovskogo AMN SSSR, Moskva.

6(6) SOV/107-59-2-21/55

AUTHOR: Gushchin, G. (Ramenskoye, Moskovskaya oblast')

TITLE: The Manufacture of Kinescope Frames (Izgotovleniye ramok dlya kineskopov)

PERIODICAL: Radio, 1959, Nr 2, p 23 (USSR)

ABSTRACT: This is a short description of how to manufacture from press-board or cardboard, kinescope frames with larger screen, when modifying industrial television receivers. There are 2 graphs and 1 table.

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SARVIN, N.S.; NIKULIN, I.Ya.; GUSHCHIN, G.G.

Introducing an automatic machine for cutting threads in box nuts. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst. nauch.i tekh.inform. 18 no.11:20-21 N '65.
(MIRA 18:12)

TARKHOV, A.I., inzh.; GUSHCHIN, G.I., red.; MIRONOV, N., tekhn. red.

[Pneumatics and automation of irrigation] Pnevmatika i avtomatizatsiia polivov. Stalinabad, Izd-vo M-va sel'khoz. Tadzhikskoi SSR, 1961. 42 p. (MIRA 15:1)

(Irrigation farming)

ACCESSION NR: AT4042306 S/0000/63/003/000/0289/0295

AUTHOR: Gushchin, G. I., Loginov, N. I.

TITLE: Electromagnetic flow meters with axiosymmetrical channels for liquid metal heat carriers

SOURCE: Soveshchaniye po teoreticheskoy i prikladnoy magnitnoy gidrodinamike. 3d, Riga, 1962. Voprosy* magnitnoy gidrodinamiki (Problems in magnetic hydrodynamics); doklady* soveshchaniya, v. 3, Riga, Izd-vo AN LatSSR, 1963, 289-295

TOPIC TAGS: heat carrier, liquid metal heat carrier, flow meter, electromagnetic flow meter, contact resistance

ABSTRACT: The authors consider the effect of the electrical contact resistance between the liquid metal and the electroconducting wall of the channel on the calculation and operation of electromagnetic flow meters with a working channel of axiosymmetrical form. The fundamental assumptions adopted in the study are set forth (constancy, homogeneity and infinite extension of the magnetic field along the channel axis; axial symmetry in the case of the liquid flow which is also assumed to be distorted only to a very slight degree by the electromagnetic forces; electron conductivity on the part of the

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ACCESSION NR: AT4042306

liquid; an electrical contact resistance between the liquid and the conducting wall which does not depend on the angle Θ ; axiosymmetry on the part of the flow meter channel which is assumed to be manufactured of a material with some electrical conductivity), and formulas are derived, on the basis of which the potential distribution as a function of angle Θ can easily be followed. This function is shown to be of a simple sinusoidal character for both the wall and the liquid. A further analysis is made of the distribution of potentials over the section of the wall. The dependence of the shunting factor on the value of the electrical contact resistance for different specific resistivities of the liquid and wall is analyzed, and the output voltage factor is studied from the same point of view. The authors have shown that in the case of flow meters in which the signal is read directly from the liquid flow, it is expedient to increase the contact resistance artificially or to design the channel of insulating material. In the case of flow meters in which the signal is taken directly from the outer surface of the wall, on the other hand, the contact resistance should be reduced and, if possible, stabilized. The presence of electroconductivity in the walls of the working channel leads to the occurrence of points with extremal potential values within the stream. The greater the shunting effect of the walls, the more the maximum potential difference between these points will differ from the voltage on the flow surface. The authors describe how this phenomenon can be

ACCESSION NR: AT4042306

employed to increase the sensitivity of flow meters with internal cathodes. It is also shown that in the transition from a laminar to a turbulent flow, no fundamental changes occur in the distribution of equipotentials and flows. Orig. art. has: 6 figures and 9 formulas.

ASSOCIATION: None

SUBMITTED: 04Dec63 ENCL: 00 SUB CODE: IE, EE

NO REF SOV: 000 OTHER: 001

3/3

Card

ACCESSION NR: AT4042307 S/0000/63/003/000/0297/0307

AUTHOR: Gushchin, G.I., Loginov, N.I., Subbotin, V. I.

TITLE: Measuring the velocity profile by an electromagnetic method

SOURCE: Soveshchaniye po teoreticheskoy i prikladnoy magnitnoy gidrodinamike. 3d, Riga, 1962. Voprosy* magnitnoy gidrodinamiki (Problems in magnetic hydrodynamics); doklady* soveshchaniya, v. 3. Riga, Izd-vo AN LatSSR, 1963, 297-307

TOPIC TAGS: hydromagnetics, velocity measurement, flow meter, velocity profile, electromagnetic velocity measurement, induction current, potential gradient measurement

ABSTRACT: The authors describe the essential features of an electromagnetic method for velocity measurement. This method is based on the induction of an EMF in a conductor travelling within a magnetic field. The distribution of potentials in the electroconductive liquid flowing in the magnetic field is uniquely related to the distribution of velocities in the liquid. A mathematical explanation of the method is given. The point is made that in order to obtain a velocity distribution by this method, the potential distribution and the mean velocity of the flow must be measured. A single moving electrode, introduced into the flow, with the tubing wall used as the second electrode, is

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sufficient for potential measurements in a liquid. Attention is called, however, to the difficulty involved in differentiating an experimentally measured potential distribution. In this connection, a two-electrode method for measuring the potential gradient is considered in the article. The authors note that with a velocity gradient present, circular currents arise in the liquid. In the first place, these currents give rise to an additional voltage drop in the liquid, thus distorting the potential gradient profile. In the second place, the presence of currents in the liquid leads to the occurrence of electromotive forces, which distort the velocity profile. With regard to the first effect, the authors demonstrate that measurements can be conducted with conventional unshielded electrodes and at an angle of 90° to the direction of the magnetic field. Since the magnitude of the EMF is proportional to the square of the magnetic induction, by reducing the latter, the second effect can be held to a minimum. The experimental stand, associated apparatus and the experiments themselves are described in a separate section of the paper. In addition to the basic system, the stand contained a system for the continuous purification of the metal and a measuring tank for the calibration of the flow meters by the volumetric method. Input and output of the metal was effected through mixing chambers. The experimental segment in this case was a tube of stainless steel,

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type 1Kh18N9T. A cone-shaped probe, 335 mm in length, was introduced from the output end into the segment. The probe terminated in two electrodes, whose ends were located at a distance of 1.3 mm from one another. The electrode was a wire, 0.1 mm in diameter, covered with an alundum insulation and inserted into a stainless steel capillary with an outer diameter of 0.4 mm. The probe was equipped with a special device, employing an electric motor, to permit the movement of its end over any diameter in one section of the tubing. Two series of experiments were run. In the first series, the magnetic field was generated by a permanent magnet and a single-electrode probe was used. It was found that the potentials increase, for the most part, linearly, with "bends" occurring only in the immediate vicinity of the tube walls. The results are analyzed in the article. In the second set of tests, the field was created by a DC electromagnet and a twin-electrode probe was employed. The experimental profile in this case was found to be flatter than the theoretical. Having discovered, in the course of the experimentation, severe distortion of the velocity profile at an inductance of about 6,000 gauss, the authors attempted to estimate the permissible magnitude of magnetic induction, at which distortions are negligible. The final section of the article deals with this problem. The general conclusions drawn from this study are the circular currents in the liquid do not distort the form of the potential gradient profile in the direction perpendicular to the magnetic field, and that distortion of the velocity profile by magnetic forces is very severe. This effect

ACCESSION NR: AT4042307

may be avoided by reducing the magnitude of the magnetic induction, but this requires apparatus of extremely high sensitivity, permitting the measurement of signals on the order of 1 microvolt. Orig. art. has: 5 figures and 18 formulas.

ASSOCIATION: none

SUBMITTED: 04Dec63 ENCL: 00 SUB CODE: EM, ME

NO REF SOV: 001 OTHER: 003

Card 4/4

GUSHCHIN, G.N.

Plotting railroad lines by a graphic representation of double stereoscopic models. Sbor.nauch.trud.TISI 1:115-123 '56.
(MIRA 10:12)

(Photogrammetry) (Railroads--Surveying)

YUZBASHEVA, Asya Konstantinovna; GUSHCHIN, G.N., red.

[Viticulture in dry areas] Kul'tura vinograda na bogare. Stalinabad, 1961. 32 p. (MIRA 14:12)
(Viticulture)

GUSHCHIN, G.N.

Selection of scale for special (departmental) topographical surveys. Inv. TPI 118:53-60 '63.

Methods of standardizing thermistors used in determining the temperature of measuring tapes. Ibid.:61-69 (MIR 19:9)

GUSHCHIN, G. P.

GUSHCHIN, G. P. : "The problem of measuring the total content of atmospheric ozone and its vertical distribution." Main Administration of the Hydrometeorological Service, Council of Ministers USSR. Main Geophysical Observatory imeni A. I. Voyeykov. Leningrad, 1956. (Dissertation for the Degree of Candidate in Physicomathematical Science.)

Knizhnaya letopis'
No 32, 1956. Moscow.

GUSHCHIN, G.P.

The problem of measuring the total amount of atmospheric ozone and its vertical distribution. Meteor.i gidrol. no.6:26-32 Je '57.
(MLRA 10:8)

(Atmosphere) (Ozone)

Gushchin, G.P.

AUTHOR: Gushchin, G.P. 36-72-3/13

TITLE: Ozone Content in the Atmosphere in the Leningrad Area During the Solar Eclipse of June 30, 1954 (Soderzhaniye ozona v atmosfere nad rayonom Leningrada vo vremya solnechnogo zatmeniya 30 VI 1954)

PERIODICAL: Trudy Glavnoy geofizicheskoy observatorii, 1957, Nr 72, pp. 33-38 (USSR)

ABSTRACT: The author bases his findings on the logarithm of the ratio of intensities of two different wavelengths of sunlight, direct or dispersed. This was reduced to a suitable formula for calculating ozone content (in centimeters). Observations made in the Leningrad area during a partial eclipse, together with subsequent calculations, show that barring some discrepancies, the eclipse does not perceptibly affect the ozone content in the atmosphere. Authors mentioned are: Prokof'yeva, I. A., Rodionov, S.F., and Osherovich, A.L. There are 2 figures, 1 table, and 10 references, 2 of which are USSR, and 2 Chinese.

AVAILABLE: Library of Congress

Card 1/1

36-72-4/13

AUTHOR: Gushchin, G. P.

TITLE: The "Reversion" Effect (Ob effekte obrashcheniya)

PERIODICAL: Trudy Glavnoy geofizicheskoy observatorii, 1957, Nr 72, pp. 39-45 (USSR)

ABSTRACT: In some parts of the spectral field the dispersed sun rays are absorbed by ozone. Götz, in 1929, discovered the so-called "reversion (umkehr) effect," in which the curve representing the logarithm of the intensity ratio of the zenith light for two wavelengths as a function of sun elevation has an unexpected minimum. Similar results were obtained by other observers. Of the two selected waves, one is markedly weakened by ozone, and the other is only slightly affected. The curve is calculated from data obtained by a rocket flight. The author suggests a possible cause for this "reversion," discusses the existing controversy, and notes a need for accounting for air turbidity. The authors mentioned are: Bezverkhniy, Sh.A., Kondrat'yev, K. Ya., Kuznetsov, A.P., Prokof'yeva, I.A., Rodionov, S.F., Khvostikov, I.A., and Yershova, N.D. There are 3 figures, 1 table and 12 references, 2 of which are USSR.

AVAILABLE: Library of Congress

Card 1/1

GUSHCHIN, G. P. Cand Phys-Math Sci-- (diss) "On the problem of the measuring of the general content of atmospheric ozone and its vertical distribution." [redacted] Len, 1958. 10 pp (Main Administration of the Hydrometeorological Service under the Council of Ministers USSR. Main Geophysical Observatory im A. I. Voyeykov), 140 copies (KL, 11-58, 112)

SOV/169-59-5-4925

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 5, p 87 (USSR)

AUTHOR: Gushchin, G.P.

TITLE: Investigation of Atmospheric Ozone

PERIODICAL: Mezhdunar. geofiz. god. Inform. byul., 1958, Nr 5, pp 37 - 39

ABSTRACT: The position of the six ozonometrical stations of the USSR is given, which participate in IGY (Abastumani, Alma-Ata, Vladivostok, Dikson, Leningrad, El'brus). Some data on the ozonometric equipment are given, which is applied at the stations mentioned. The stations utilize for the observations electrophotometers with light filters, adjusted for recording. The calibration of the devices was made by means of the spectrophotometer of Dobson (of the Main Geophysical Observatory imeni Voyeykov). A brief information is given on same results of measuring the general contents of ozone in Voyeykov (Leningrad region) and on the investigation of the aerosol layer of the atmosphere.

Card 1/1

Gushchin, G.P.

PHASE I BOOK EXPLOITATION SOV/3789
SOV/2-M-93

Leningrad. Glavnaya geofizicheskaya observatoriya imeni A.I. Voyeykova

Voprosy fiziki atmosfery (Problems in Physics of the Atmosphere) Leningrad, Gidrometeoizdat, 1959. 113 p. (Series: Its: Trudy, vyp. 93) 1,200 copies printed.

Sponsoring Agency: USSR. Sovet Ministrov. Glavnoye upravleniye gidrometeorologicheskoy sluzhby.

Ed. (Title page): Ye.S. Selezneva, Candidate of Physics and Mathematics; Ed. (Inside book): M.M. Yasnogorodskaya; Tech. Ed.: A.N. Sergeyev.

PURPOSE: This publication is intended for specialists in meteorology, aerology, and meteorological instrumentation.

COVERAGE: This collection of twelve articles contains the results of studies done under the auspices of the Glavnaya geofizicheskaya observatoriya imeni A.I. Voyeykova (Main Geophysical Observatory imeni A.I. Voyeykov). The first six articles give the results of aerological investigations of clouds, and the structure of anticyclones and local winds. The last six articles cover the methods of aerological investigation of atmospheric ozone, aerosols, condensation nuclei, and the chemical impurities in atmospheric precipitation. A description of new or improved instruments used in aerological investigations is also given. References are given at the end of some articles.

TABLE OF CONTENTS:

9,9862

S/675/60/000/004/005/005
D298/D304

AUTHORS: Gushchin, G.P., Myukhkyurya, V.I. and Otte, A.N.

TITLE: A field instrument for measuring ultra-violet radiation

SOURCE: Konferentsiya po biologicheskomy deystviyu ul'trafioletovogo izlucheniya. Leningrad, 1958. Ul'trafioletovoye izlucheniye solntsa i yego ispol'zovaniye dlya profilakticheskikh i lechebnykh tseley; trudy konferentsii. no. 4. Leningrad, 1960, 96-100. At head of title: Ministerstvo zdravookhraneniya RSFSR. Institut radiatsionnoy gigiyeny.

4

TEXT: To measure ultra-violet radiation in the 240-385 mμ range the Glavnaya geofizicheskaya observatoriya im. Voyeykova (Main Geophysical Observatory im. Voyeykov) developed and constructed an ultra-violet meter consisting of an electric photometer

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A field instrument ...

designed around a magnesium photocell constructed at the Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio Engineering and Electronics, AS USSR). A second model of the instrument used an antimony-cesium Cu 8-6 (STsV-6) photocell. The ultra-violet meter can measure the total dispersed and direct solar radiation at various heights of the sun. It can also measure the ultra-violet radiation from artificial light sources. By various combinations of filters, spectral ranges of 300-330, 360-380, 500-560 and 700-730 mμ can be selected for measurement. The ultra-violet meter consists of a spherical cap, a photocell d.c. amplifier, a reading microammeter, batteries, voltage regulator, control device and filter selector. The spherical cap is made of fused quartz glass (matte) so that the instrument's reading does not depend on the angular position of the light source. The receiving part of the instrument is shown in Fig. 2. A circuit diagram of the d.c. amplifier is also given. The

Card 2/4

A field instrument ...

input circuit of the amplifier contains 6 load resistances via which the instrument's sensitivity can be varied 60-fold. The amplifier has good linearity throughout the entire scale and quite a low zero drift. The maximum current amplification factor is 11,000. Tests on a wavelength of 550 m μ showed that the instrument had good light linearity. Tests beforehand showed that the filter's bandpass characteristics varied with temperature; appropriate corrections to the instrument's readings were therefore made. Further tests were carried out to determine the effects of the light source's angular position in relation to the spherical cap on the instrument's readings. It was found that the angle had practically no effect provided that the light source was more than 10° above the horizon. Instructions are given for calibrating the instrument. Together with its power pack the ultra-violet meter weighs about 5 kg. The instrument is provided with terminals for connection to a recording device such as the

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A field instrument ...

ЭПП -09 (EPP-09) recorder. The ultra-violet meter was tested and used for measuring at the Institut krayevoy patologii AN Kazakhskoy SSR (Institute of Regional Pathology, AS Kazakhskaya SSR) at the Leningradskiy pediatricheskiy nauchno-issledovatel'skiy institut (Leningrad Scientific Research Institute of Pediatrics) and the Main Geophysical Observatory im. Voyeykov. There are 4 figures.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya im. Voyeykova (Main Geophysical Observatory im. Voyeykov), Leningrad

Card 4/4

SELEZNEVA, Ye.S., otv. red.; GUSHCHIN, G.P., otv. red.; VLASOVA, Yu.V., red.; SERGEYEV, A.N., tekhn. red.

[Data on the chemical composition of atmospheric precipitation and total ozone content of the atmosphere at various points of the U.S.S.R.; materials of the International Geophysical Year and International Geophysical Cooperation for 1957-1959]Dannye po khimicheskomu sostavu atmosfernykh osadkov i obshchemu soderzhaniiu ozona v atmosfere v razlichnykh punktakh SSSR; materialy MGG i MGS za 1957-1959 gg. Leningrad, Gidrometeoizdat, 1961. 81 p.

1. Leningrad. Glavnaya geofizicheskaya observatoriya. (MIRA 15:9)
(Precipitation(Metereology)) (Air—Analysis) (Ozone)

S/169/63/000/002/020/127
D263/D307

AUTHOR: Gushchin, G. P.

TITLE: A method of calculation of the overall ozone content for instruments with light filters

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 2, 1963, 14-15, abstract 2B115 (In collection: Atmosfern. ozon, M., Mosk. un-t, 1961, 141-148 (summary in Eng.))

TEXT: Measurement of ozone by Dobson's method is based on the use of narrow spectral bands, isolated by the optical part of the instrument. This method is, however, unsuitable for instruments fitted with glass or certain interference filters, since the spectral bands separated by the latter are fairly broad (50 - 250 Å at half-height of the transmission curve). A new method is suggested for the calculation of overall ozone content, which allows freedom from error caused by the width of bands transmitted by filters. The method requires the use of two filters. The transmission band of the first filter is in the part of uv where ozone absorbs radiation;

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the transmission band of the second filter lies outside the ozone absorption region. Spectral bands corresponding to both spectral sensitivity curves of the ozonometer are split into 20 Å intervals, and Bouguer-Lambert law is applied to each such band. At any moment, the reading I of the output microammeter of the ozonometer for the 1st filter is a linear function of the sum of readings for each spectral interval. The reading for the second filter is analogously denoted by I'. The ratio I/I' for the 2 filters and photoelement is a function of the elevation of the sun (θ) and overall ozone content x, i.e. $I/I' = F(\theta,x)$ where

$$F(\theta),x) = \int_{\lambda_1}^{\lambda_2} I_\lambda d\lambda / \int_{\lambda_3}^{\lambda_4} I_\lambda \, dx$$

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λ_1, λ_2 are the limits of the spectral interval of the first filter and λ_3, λ_4 are those of the second filter. Selecting a value $x = x_1$, $F(\theta,x)$ may be plotted as a function of θ. A series of such curves constructed for various x constitutes a nomogram for the determination of the overall ozone content of the atmosphere. Analysis of the accuracy of this method shows that the shorter the wavelength where the transmission maximum of the first filter is situated, the smaller the errors. It is understood that the maximum of the first filter should not lie below 3000 Å, where the solar spectrum observable from the Earth's surface is cut off. [Abstracter's note: Complete translation.]

S/169/63/000/002/021/127
D263/D307

AUTHOR: Gushchin, G. P.

TITLE: Regularities of the horizontal distribution and of atmospheric ozone and its variations with time

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 2, 1963, 15, abstract 2B116 (In collection: Atmosfern. ozon, M., Mosk. un-t, 1961, 149-169 (summary in Eng.))

TEXT: During the study of the connection between overall ozone content and meteorological conditions it is important to study those regularities which determine the distribution of ozone in the atmosphere - both the mean values and the values at any instant. Average values obtained in 1958 by 9 ozonometric stations in the USSR showed the presence of seasonal and latitudinal variations in the overall ozone content. A clear maximum was noted in spring and a minimum in the autumn. A sharp decrease in the overall ozone content was observed at polar stations during the transition from spring to summer. The latitudinal and seasonal variations cannot

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be explained by the photochemical theory, nor by the temperature dependence of the density of ozone. A new explanation is, therefore, proposed, based on the consideration of the effect of solar radiation and turbulent diffusion. Ozone-forming solar radiation ($\lambda < 2420$ Å) does not penetrate below 20 km, whilst ozone-disrupting radiation ($2820 < \lambda < 11340$ Å) reaches the Earth's surface. This radiation decomposes the ozone in the 0 - 20 km layer, and thus continuously causes its depletion. Such depletion is, however, not observed, since ozone enters this belt from the upper layers under the influence of turbulent diffusion. In the upper part of the layer (25 - 60 km) ozone loss is supplemented by photochemical reactions. Downward transport of ozone is explained by peculiarities of its vertical distribution (more ozone is present in the upper layers). In the winter half of the year (October-March) when solar radiation is weak, turbulent transport of ozone into the 0 - 20 km layer more than balances its dissociation by radiation. A maximum in the overall ozone content should, therefore, occur at the end of this season (March), since the seasonal variations in the 25 - 60 km layer are insignificant. In the summer half of the year (April

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- October)radiative dissociation of ozone predominates over turbulent influx. A minimum is therefore noted at the end of this season (October). It follows that in low latitudes, where seasonal variations in the total solar radiation are slight, annual variations of ozone are weakly pronounced. Conversely, in high latitudes where the seasonal variations of solar radiation are very large, the seasonal variations of ozone are correspondingly very pronounced. From consideration of these two main factors of solar radiation and turbulent diffusion equations are derived for the annual ozone balance. In these formulas the constants are determined by substituting into the equations the experimentally obtained mean monthly overall ozone contents and mean monthly values of the maximum possible solar radiation. From the constants obtained in this way, and using the formulas, curves have been calculated for the seasonal variations of ozone in latitudes 0°, 30°, 45°, 60° and 80°. All theoretical curves exhibit maxima in the spring and minima in the autumn. To study the horizontal distribution of ozone at any instant, the author used daily baric topography 300 and 200 mb charts. Positions of the axes of the flow currents were determined on these

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charts, and values of the overall ozone contents for 1957-1959 were plotted. As a result, it was shown that increased horizontal ozone content gradients are found in the zone of flow currents, these gradients being directed from left to right. In cases when no flow currents occur in the region of the station, no sharp differences are usually observed in the ozone content over stations separated by a short distance. The vertical structure of flow currents was considered to explain the factors obtained. The stream forming the subtropical flow current reaches 18 km in the summer, and 20 or more kilometers in the winter. Considering that rapid increase in the density of ozone with height frequently begins over the tropopause it may be assumed that flow currents exert an influence on the horizontal distribution of the overall ozone content. [Abstracter's note: Complete translation.]

S/169/63/000/002/023/127
D263/D307

AUTHOR: Gushchin, G. P.

TITLE: On two important characteristics of ozonometric instruments

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 2, 1963, 16, abstract 2B118 (In collection: Atmosfern. ozon, M., Mosk. un-t, 1961, 176-183 (summary in Eng.))

TEXT: The author studied two factors which exerted an important influence on the quantity of ozone measured: the magnitude of the solid angle and temperature variations of the ozonometer. Two experiments were carried out to elucidate the effect of the magnitude of the solid angle. In the first experiment the dependence was determined of the ratio of readings from the two light filters on the solid angle of a universal ozonometer, for various elevations of the sun. The transmission maximum of the first filter was at 312 mμ, and that of the second filter at 372 mμ. The ozonometer was

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directed at the sun, and the solid angle was adjusted by means of a diaphragm, assuming values of 2°,0, 6°,2, 11°,7, and 30°,5 in planar measure. From these tests it was found that, for the same elevation of the sun, the ratio I_1/I_2 increases with increasing solid angle. The divergences between values of I_1/I_2 increase with decreasing elevation of the sun. Lower ozone contents will therefore be obtained by calculation where the solid angle is large. This may be explained by the fact that the intensity of scattered sky radiation in the section of the first filter is alway relatively greater than that of the second. Since the intensity of scattered sky radiation increases with decreasing elevation of the sun in comparison with direct solar radiation, particularly in the short wavelength region, the effect of the solid angle is more pronounced with a low sun, It was shown that ozone measurements may be carried out from the ground without appreciable errors with a bright sky, solar elevation >10°, and a solid angle of 6°. In the second experiment the dependence was determined of the reading

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ratio I_1/I_2 on the height above sea level, for various solid angles of the instrument, for the same elevation of the sun. For this purpose the ozonometer was carried by helicopter up to the height of 2.1 km. It was shown that the ratio I_1/I_2 increases with increasing height above sea level. This is ascribed to the fact that the short-wave radiation in the atmosphere increases faster with height than does the long-wave radiation. At heights equal to or greater than 2 km, ozonometry may be carried out without appreciable errors with a solid angle of 10^o. Temperature variations of the instruments mar the accuracy of the ozone contents measured. It was shown that the chief cause of temperature-induced errors of the universal ozonometer was a change in the transmission characteristics of the second filter, Transmission/temperature curves are given for the two filters. The transmission of the first filter decreases with increasing temperature. To compensate for the temperature error of ozonometers fitted with filters, the author gives a calibration factor for various temperatures. These coef-

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On two important ... S/169/63/000/002/023/127
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ficients are obtained by comparing ozonometers with filters with a standard instrument. [Abstracter's note: Complete translation.]

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S/169/62/000/004/019/
D228/D302

3.5120
3.5150

AUTHOR: Gushchin, G. P.

TITLE: Study of atmospheric aerosols

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 4, 1962, 10, abstract 4B77 (V sb. Aktinometriya i atmosfern. optika, L., Gidrometeoizdat, 1961, 218-227)

TEXT: The author states the procedure and the results of aerosol investigations, carried out in 1957-1958 by the ozonometric group of the Glavnaya geofizicheskaya observatoriya im. A. I. Voyeykova (Central Geophysical Observatory im. A. I. Voyeykov). A study was made of aerosol characteristics: The optical mass δ_λ, the index of dilution γ_λ, the dimensions r, and the number of particles N in a vertical column of the atmosphere with a sectional area of 1 cm^2. Three instruments were used for the measurements: a) A Dobson spectrophotometer, whose optical part is a double quartz monochromator with three constant slits, separating narrow monochromatic

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pencils with wavelengths λ_1 314, λ_2 322, and λ_3 456 mμ; b) a Scholz nuclear-condensation counter; and c) an aircraft electro-photometer with light-filters. The magnitudes of σ_λ and σ_λ were measured by standard procedures; a special method was developed to determine the magnitudes of r and N. A graph of the dependence of the ratio $\sigma_{\lambda_2}/\sigma_{\lambda_3}$ on r was constructed to ascertain optically the effective aerosol-particle radius r_{eff} on the basis of Mi's formulas, when it was assumed that an aerosol consists of spherical water droplets of identical sizes. In the region $0.05 < r < 0.55$ μ this relationship appeared to be synonymous. The value of r_{eff} was determined by means of a graph from the experimentally found ratio $\sigma_{\lambda_2}/\sigma_{\lambda_3}$. The value of N_{eff} was found from the magnitudes of r_{eff} and σ_{λ_2}. The parameters of the two functions of the size distribution of aerosol particles was also determined by means of the ratio $\sigma_{\lambda_2}/\sigma_{\lambda_3}$. Bipara-

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metric functions were used. The magnitude of δ_λ in the interval 200 - 800 mμ was found from the values of r_{eff} and N_{eff}, or from those of the parameters of the distributive functions. The following results were obtained in consequence of the measurements and their processing (~5000 cases): 1) Throughout the year the magnitude of δ_λ varied from 0 to 0.5 for λ_2 332 mμ and from 0 to 0.4 for λ_3 456 mμ, δ_{λ_2} always being greater than δ_{λ_3}. The maximum value of δ_λ was observed in summer, the minimum being in winter. 2) There is a diurnal variation in the magnitude of δ_λ with a maximum at noon local time. 3) The average value of r at the maximum distribution equalled 0.17 mμ; the value of N ranged from 10^7 to 10^8 particles/cm^2. At a maximum distribution for the other biparametric function the mean value of the particles' radii was smaller and equalled 0.08 - 0.1 μ. 4) In the region 300 - 800 mμ the magnitude of δ_λ, found by means of calculations of the two values of δ_{λ_2} and

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δ_{λ_3}, diminishes as the wavelength grows. 5) It was successfully established from the observations that no close relation exists between the atmosphere's inclined transparency and the visibility's horizontal range. 6) In each separate case the magnitude of γ_n, characterizing the vertical aerosol distribution, does not obey the exponential law on the change of h. There are often aerosol layers at heights of 2 - 6 km. 7) On an average about one quarter of the whole aerosol layer is situated above 6 km (according to the optical weakening). 8) On an average the concentration of condensation nuclei diminishes with altitude more rapidly than the index of aerosol dilution. [Abstracter's note: Complete translation.]

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VAN GUY-CHIN'; GUSHCHIN, G.P.

Variation of the total amount of atmospheric ozone in cyclones and anticyclones. Trudy GGO no.106:19-36 '61. (MIRA 14:10)
(Ozone) (Cyclones)

GUSHCHIN, G.P.; ROMANOVA, R.G.

Comparative characteristics of data on atmospheric ozone collected during the International Geophysical Year at some stations. Trudy GGO no.106:37-43 '61. (MIRA 14:10)
(Ozone) (Atmosphere)

L 38303-65 EWT(1)/EWG(v)/FCC/EEC(t) Po-4/Pe-5/Pq-4/Pt-10/Pl-4 GW
ACCESSION NR: AR5003329 S/0081/64/000/021/E046/E046

SOURCE: Ref. zh. Khimiya, Abs. 21E123

AUTHOR: Gushchin, G. P.; Romanova, R. G.; Romashkina, K. I.

TITLE: Analysis of ozone from an airplane

CITED SOURCE: Sb. Materialy konferentsiy po itogam MGG (1960) i meterol. issled. Antarktidy (1959). M., Gidrometeoizdat, 1961, 183-186

TOPIC TAGS: ozone concentration, atmospheric ozone, atmospheric temperature, atmospheric pressure, jet stream, aviation meteorology

TRANSLATION: The authors report the results of the measurement of the total content of atmospheric ozone during 2 flights over the territory of the SSSR in the fall of 1959. The flight in August-September was over the route Leningrad-Odessa-Tashkent-Aktyubinsk-Volgograd-Leningrad, while the flight in September-October followed the route Leningrad-Odessa-Mineral'nyye Vody-Tashkent-Aktyubinsk-Kazan'-Leningrad. The flights were carried out at altitudes of 3 and 2.1 km. After processing the data of the flights, the authors obtained curves showing the total

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ozone content along the route. The total ozone content during the flights fluctuated considerably, the fluctuations exceeding the experimental error. As the axis of the jet stream was bisected, there was a sharp increase in the ozone content amounting to almost 30%. A brief analysis of the pressure conditions at the 300 and 200 mb levels is given, together with graphs of the total ozone content. It is pointed out that a sharp change in the total ozone content in the area of the jet stream was previously observed by the authors in other areas during measurements from an airplane. In order to study the relationship between the total ozone content and the air temperature at the height of the flight, curves were constructed showing the ozone content and air temperature. These curves are interrelated and show a reciprocal course. The authors conclude that there is a significant increase in the horizontal gradient of the total ozone content in the areas of the jet stream in the spring and fall. G. Gushchin.

SUB CODE: ES, SV ENCL: 00

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GUSHCHIN, G.P.

Theory of the "anomalous transparency" effect. Izv.AN SSSR.Ser. geofiz. no.8:1113-1125 Ag '62. (MIRA 15:8)
(Atmospheric transparency) (Light--Scattering)

S/531/62/000/134/001/002
I045/1245

AUTHOR: Gushchin, G. P.

TITLE: Ozone and some peculiarities of atmospheric circulation

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 134, 1962, 75–101 Rezul'taty issledovaniy v period MGG i MGS

TEXT: The article sums up the latest empirical information and theoretical interpretation on ozone investigation and explains qualitatively some peculiarities of atmospheric circulation. The following problems are discussed: Subtropic anticyclones, tropopause, polar stratospheric cyclone and anticyclones, heat regions in the stratosphere and in the northern Pacific and the dependence of the weather on solar activity. There are 9 figures and 47 references.

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GUSHCHIN, G.P.; ROMANOVA, R.G.

Some features of interlatitudinal exchange in the lower stratosphere according to observations on atmospheric ozone. Trudy GGO no.134:102-112 '62. (MIRA 15:6)
(Atmosphere, Upper) (Ozone)

S/531/62/000/134/002/002
I045/1245

AUTHORS: Gushchin, G. P. and Romanova, R. G.

TITLE: Average data on general ozone contents in the atmosphere over the northern hemisphere in 1958

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 134, 1962, 113–118. Rezul'taty issledovaniy v period MGG i MGS

TEXT: The article lists mean annual and monthly values of atmospheric ozone content at various latitudes and over the whole northern hemisphere as calculated from the reports of 25 ozonometric stations. Two graphs illustrate the monthly fluctuations of ozone content and the distribution of the annual ozone content over the latitudes. Empirical formulas are given. There are 3 figures, 2 tables, and 2 references.

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GUSHCHIN, Gennadiy Petrovich; GAVRILOV, V.A., otv. red.; KAPITANETS, Ye.P., red.; ALEKSEYEV, A.G., tekhn. red.

[Study of atmospheric ozone] Issledovanie atmosfernogo ozona. Leningrad, Gimizd. 1963. 266 p. (MIRA 16:10)
(Ozone)

GUSHCHIN, G.P.

Effect of anomalous transparency. Trudy GGO no.141:44-71 '63. (MIRA 17:4)

GUSHCHIN, G.P.; TANYGINA, I.I.; SHALAMYANSKIY, A.M.

Ozone measurements at Karadag (Crimea) during the total solar eclipse of February 15, 1961. Trudy GGO no.141:72-79 '63. (MIRA 17:4)

GUSHCHIN, G.P.

A universal ozonometer. Trudy GGO no.141:83-98 '63. (MIRA 17:4)

ACCESSION NR: AT4043154 S/2531/64/000/154/0020/0029

AUTHOR: Gushchin, G. P., Shatunoy, I. A.

TITLE: Atmospheric ozone and jet streams

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy*, no. 154. Voprosy* fiziki atmosfery* (Problems in atmospheric physics), 20-29

TOPIC TAGS: meteorology, ozone, atmospheric physics, troposphere, stratosphere, aircraft turbulence, jet stream

ABSTRACT: Since the mass concentration of ozone increases sharply with height up to 30-40 km, it is natural to expect that the high turbulence in the jet stream zone leads to a change in both the vertical distribution and the total ozone content in this zone in comparison with the quiet atmosphere. The authors have investigated the relationship between the total content and vertical distribution of ozone and the position of the jet stream axis (subtropical and extratropical jet stream at the 300-100 mb levels). The form of the mean ozone profile in the jet stream zone is relatively independent of season and wind direction. In jet stream zones there is a high horizontal gradient of the total ozone content.

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ACCESSION NR: AT4043154

Specifically, on the left (cyclonic) side of a jet stream there is a maximum total ozone content not coinciding with the axis of the jet stream. On the anticyclonic periphery of the jet stream zone there is sometimes a minimum total ozone content. A minimum of the total ozone content is also noted on the cyclonic periphery near the jet stream zone. On the whole, the total ozone content is high in the jet stream zone. The jet stream ozone profile was also investigated using 1958 data for 37 stations in the northern hemisphere. The position of the jet stream axes was determined from pressure pattern charts for the 200-mb surface. The seasonal and latitudinal variation of ozone was excluded by using the deviations of the total ozone content from the mean monthly values. A total of 2,613 cases of ozone deviations was analyzed, and mean relative ozone profiles were obtained for winter, spring, summer, autumn and the whole year, as shown in Fig. 1 of the Enclosure. The number of cases for each season and for the whole year is indicated on the curves. Seasonal change exerts no appreciable influence on the general character of the ozone profile in jet streams. It is shown that the value of ozone density can be used successfully for determination of the position of zones of aircraft turbulence. The high total content of ozone in jet stream zones whould be reflected in the mean meridional

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distribution of ozone and this actually is observed, as demonstrated on the basis of data from 10,000 observations. It is concluded that jet streams in the atmosphere facilitate the penetration of ozone from the mesosphere and upper stratosphere into the lower stratosphere and troposphere. The most probable mechanism of such ozone movement is atmospheric turbulence in a vertical direction. The probable loss of ozone at heights of 20-25 km as a result of its turbulent downward flux is compensated (fully or partially) by an ozone flux from greater heights (25-35 km) where photochemical equilibrium is established rapidly. Ozone data are therefore a valuable characteristic of the turbulent state of the lower stratosphere and upper troposphere. Orig. art. has: 5 figures and 3 tables.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

SUBMITTED: 00 ENCL: 01

SUB CODE: ES NO REF SOV: 012 OTHER: 008

Card 3/4

ENCLOSURE: 01

ACCESSION NR: AT4043154

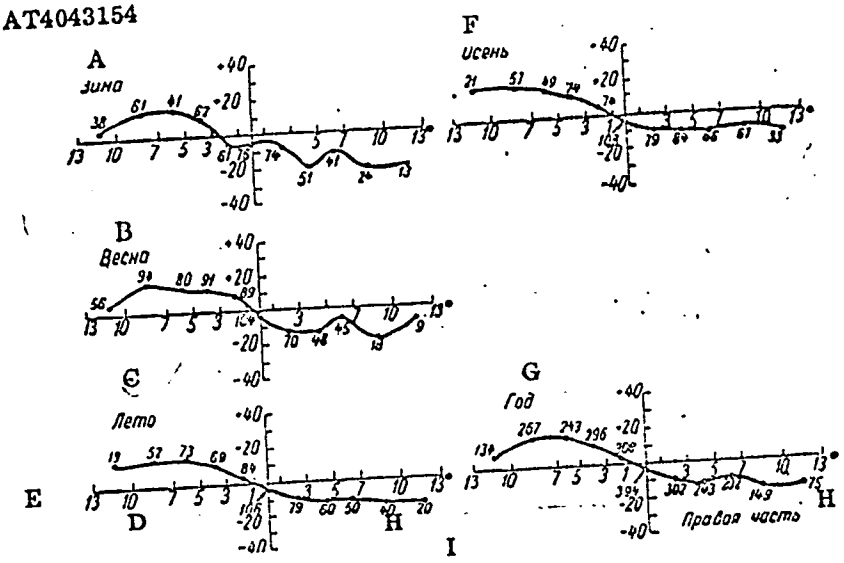

Fig. 1. Mean deviations of total ozone content in the jet stream zone in different seasons and for the year. A - winter; B - spring; C - summer; D - left part; E - deviation of total ozone content, 10^{-3} cm; F - autumn; G - year; H - right part; I - Distance from jet stream axis, in degrees

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ACCESSION NR: AT4016058 S/2531/63/000/141/0083/0098

AUTHOR: Gushchin, G. P.

TITLE: A universal ozonometer

SOURCE: Leningrad. Glavn. geofiz. observ. Trudy*, no. 141, 1963. Voprosy* fiziki i khimii atmosfery* (Problems of physics and chemistry of the atmosphere), 83-98

TOPIC TAGS: ozonometer, ultraviolet radiation, ozone, atmospheric optics, spectrophotometry, ultraviolet radiation, solar ultraviolet radiation

ABSTRACT: The author describes the ozonometer created between 1958 and 1961 by the Glavnaya geofizicheskaya observatoriya (Main Geophysical Observatory) and now in use in the Soviet Union's ozonometric stations. Its principle is based on measuring the attenuation of the solar or lunar ultraviolet radiation into two spectrum sections, one of which is within the ozone absorption band and the other of which is outside the band or on its boundary. It is capable of determining total ozone content in the atmosphere from direct solar or lunar light or from sky-zenith, scattered light observations. The ozonometer is usable on aircraft, and it is able to solve various problems of atmospheric optics. Its assembly consists of an encased receiving system composed of two diaphragms, eight re-

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volving light filters, an F-4 photocell, and an FEU-18 photomultiplier, an azimuthal altimeter, a control board, a feeder for night measurements and two circuits to control stability and sensitivity of the instruments. Ozone content is found from the nomogram, shown in figure 1 of the Enclosure, whose abscissa represents the angular altitude of the sun and whose ordinate shows the ratio I_1/I_2 of the two ozonometer readings. Each individual ozonometer has a calibration factor K_t which is found by the simultaneous measurement of direct solar light flow to the ozonometer with a reference Dobson spectrophotometer. "For their participation in the work the author extends his gratitude to K. I. Romashkina, A. S. Kokko, R. G. Romanova, S. I. Zachek, V. I. Myukhkyurya, A. M. Shalamyaskiy and V. B. Alexandrovich." Orig. art. has: 8 figures, 2 tables, and 6 formulas.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

SUBMITTED: 00 DATE ACQ: 12Mar64 ENCL: 01

SUB CODE: ES NO REF SOV: 009 OTHER: 006

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ACCESSION NR: AT4016058

ENCLOSURE: 01

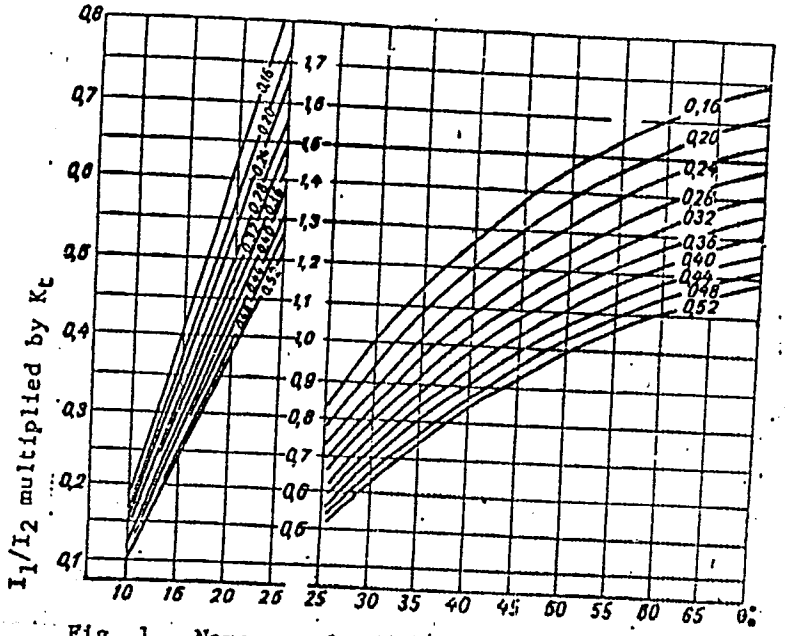

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Fig. 1. Nomogram for the determination of total ozone content in the atmosphere (at sea level).

L 41667-65 EWG(v)/EWT(1)/EEC(t)/FCC Pe-5/Pi-4 GW S/2531/63/000/141/0044/0071

ACCESSION NR: AT4016057

AUTHOR: Gushchin, G. P.

TITLE: The effect of anomalous transparency

SOURCE: Leningrad. Glavn. geofiz. observ. Trudy*, no. 141, 1963. Voprosy* fiziki i khimii atmosfery* (Problems of physics and chemistry of the atmosphere), 44-71

TOPIC TAGS: atmospheric light scattering, anomalous atmospheric transparency, natural aerosol theory, atmospheric turbidity, atmospheric light transmission, Rodionov effect, secondary light scattering

ABSTRACT: During the El'brus expedition (1963), S. F. Rodionov and his collaborators discovered a new effect of atmospheric optics which he attempted to explain by the so-called aerosol hypothesis (see, e.g., S. F. Rodionov, Ye. N. Pavlova, DAN SSSR (new series), v. 19, no. 1-2, 1938). According to such a theory, the anomalous transparency is due to a layer of aerosol which, at El'brus, is essentially aqueous. Later measurements showed, however, that the actual amount of aerosol present is not sufficient to explain the observed transparency (see, e.g. data from Yu. S. Georgiyevskiy, A. Ya.

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L 41667-65

ACCESSION NR: AT4016057

Driving, N.V. Zolotavina, G. V. Rozenberg, Ye. M. Feygel'son, V. S. Khazanov, Prozhektornyy luch v atmosfere, Ed. AN SSSR, M., 1960; D. Dermendjian, L. Sekera, Journ. of the Society of America, v. 45, no. 8, 1956). Next, the author shows on the basis of extended theoretical deliberations that there is no way in which the single-scattering could explain the observed effects. However, it turns out that the anomalous transparency is connected with the scattered light and, consequently, it becomes obvious that one should study secondary scattering. Studies were verified by measurements of solar radiation within a certain solid angle and also, simultaneously, of the scattered light from the zenith into a wide solid angle (in such a way that the secondary scattered light from the zenith would enter the recording instrument). The secondary scattering explains in a satisfactory manner: (1) the shift in minima of the radiation curves as a function of the wavelength; 2) the relationships between the primary and secondary scattered radiations; 3) the position of the minimum on the Rodionov curve; i.e., the increase in the aerosol weakening is to a certain degree analogous to a decrease in the wavelength; and 4) the absence of anomalous transparency in the visible region; in this case, the primary solar radiation is much stronger than the secondary scattered light (due to the absence of ozone attenuation and a weakened Rayleigh scattering). Consequently, the effect of anomalous transparency should be renamed "the effect of secondary atmospheric scattering".

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"The author thanks K. I. Romashkina, A. M. Shalamyanskiy, and V. M. Aleksandrovich for their role in the present study." Orig. art. has: 39 formulas, 10 figures, and 7 tables.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

SUBMITTED: 23Mar64 ENCL: 00 SUB CODE: ES

NO REF SOV: 014 OTHER: 009

Card 3/3

GUSHCHIN, Gennadiy Petrovich; MIKHEL', V.M., otv. red.; KUSAKOVA, G.Ya., red.

[Ozone and aerosynoptic conditions in the atmosphere] Ozon i aerosinopticheskie usloviia v atmosfere. Leningrad, Gidrometeoizdat, 1964. 340 p. (MIRA 17:5)

L 55094-65 EWT(l)/EWG(v)/FCC/EEC(t)/EWA(h) Pc-4/Pe-5/Pq-4/Pae-2/Pt-7/Peb/Pl-4
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ACCESSION NR AM5009855 BOOK EXPLOITATION UR/
551.510.534

Gushchin, Gennadiy Petrovich

Ozone and aerosynoptic conditions in the atmosphere (Ozon i aerosinopticheskiye usloviya v atmosfere), Leningrad, Gidrometeoizdat, 1964, 349 p. illus., bibio. (At head of title: Glavnoye upravleniye gidrometeorologicheskoy sluzhby pri Sovete Ministrov SSSR. Glavnaya geofizicheskaya observatoriya im. A.I. Voyeykova) Errata slip inserted. 750 copies printed

TOPIC TAGS: atmospheric physics, atmospheric ozone, climatology, solar radiation, atmospheric turbulence, atmospheric optics, climatic condition, weather forecasting

PURPOSE AND COVERAGE: The book reports on the relation between atmospheric ozone and aerosynoptic conditions. Research materials of the International Geophysical Year, 1957-1959, and of subsequent years have been used as a basis for this book. According to the book, the photochemical theory of atmospheric ozone is based on two basic factors: turbulent diffusion and solar radiation. An attempt to explain the vertical and horizontal distribution of ozone is based on the above two factors. Results of current studies support the fact that atmospheric ozone is the most important element of weather and climate. The book is intended for meteorologists, physicists, aerologists, and persons working in the fields of actinometry and atmospheric optics.

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SUBMITTED: 07Feb64 SUB CODE: ES

NO REF SOV: 093 OTHER: 140

Card 2/2

GUSHCHIN, G.P., kand. fiz.-mat. nauk, red.; BELEN'KAYA, L.L., red.

[Atmospheric ozone; materials] Atmosfernyi ozon; materialy. Leningrad, Gidrometeoizdat, 1965. 149 p. (MIRA 18:9)

1. Mezhduvedomstvennoye soveshchaniye po atmosfernomu azonu. 3d, Leningrad, 1963.

POSTNIKOV, M.V. dotsent, kand. tekhn. nauk; GUSHCHIN, G.N., starshiy prepodavatel'

Determining the temperature of measuring wires from semiconductor microthermal resistance. Izv. vys. ucheb. zav.; geod. i aerof. no. 4:7-10 '64. (MIRA 18:2)

1. Tomskiy inzhenerno-stroitel'nyy institut.

[illegible], V.P.; GUSHCHIN, G.Ye.

Wind load and the loading of overhead catenary. [illegible] 131-136 '63. (MIRA 16:7)

CHERNOVETSKIY, I.Kh., inzh.; NELIPOVICH, F.V., inzh.; GUSHCHIN, I.A., inzh.

Diamond honing of parts made of hardened steel. Mashinostroenie no.5:27-30 S-O '65. (MIRA 18:9)

USSR / Forestry. Forest Management. K

Abs Jour: Ref Zhur-Biol., No 7, 1958, 29549.

Author : Gushchin, I. I.
Inst : Not given.
Title : The Cultivation and Use of Healthy Aspen Wood. (Vyrashchivaniye i ispol'zovaniye zdorovoy osinovoy drevesiny).

Orig Pub: Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1957, vyp. 29, 351-356.

Abstract: Observations made by the department of forestry of the Moscow Agricultural Academy im. K. A. Timiryazev in 1944-1952 at the forests of Arzamasskaya, Gomel'skaya, and Kaluzhskaya Oblasts have demonstrated that the aspens grow in biogroups of 3-10 and 10-15 trees each, whose care must be maintained upon felling. When selecting

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USSR / Forestry. Forest Management. K

Abs Jour: Ref Zhur-Biol., No 7, 1958, 29549.

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617620006-3"

Abstract: the trees for felling and those of them left for cultivation it is necessary to follow the classification of V. G. Nesterov. In view of the increased spread of rot in aspen groves aged over 30-35 years, it is expedient to chop them for main use just at this age. The most rational ways of using aspen wood are sketched.

Card 2/2

ABS. JOUR. : RZhBiol., No. 14, 1958, No. 6 667

AUTHOR : Gushchin, I.I.
INST. : Timiryazev Academy of Agriculture in Moscow.
TITLE : Causes of the Origin of Pith Rot in Aspen.

ORIG. PUB. : Dokl. Mosk. s. -kh. akad. im. K.A. Timiryazeva, 1957, vyp. 31, 352-356
ABSTRACT : No abstract.

Card: 1/1

TOLCHEEV, Boris Pavlovich; GUSHCHIN, I.I., red.; TUPYNOVA, [illegible], red.izd-va; PARAKHINA, N.L., tekhn.red.

[Forestry in the People's Republic of Albania] Lesnoe khoziaistvo Narodnoi Respubliki Albanii. Moskva, Goslesbumizdat, 1960. 38 p. (MIRA 13:12)

(Albania--Forests and forestry)

DASHKEVICH, Nina Diomidovich; GUSHCHIN, I.I., red.; IOFINOVA, TS.B., red. izd-va; GRECHISHCHEVA, V.I., tekhn. red.

[Reference book for forest plantings and forest improvement; for laboratory and practice lessons] Posobie po lesnym kul'turam i lesomelioratsii; dlia laboratorno-prakticheskikh zaniatii. Moskva, Goslesbumizdat, 1961. 87 p. (MIRA 15:4)
(Forests and forestry)

SHISHKIN, I.I.

"The Cultivation of Healthy Asp Forests in the Forests of Moskovskaya Oblast";

dissertation for the degree of Candidate of Agricultural Sciences (awarded by the Timiryazev Agricultural Academy, 1962)

(Izvestiya Timiryazevskoy Sel'skokhozyaystvennoy Akademii, Moscow, No. 2, 1963, pp 232-236)

GUSHCHIN, I.S. (Moskva)

Changes in the functional state of some sections of the central nervous system in anaphylactic shock in rats. Fat. fiziol. i eksp. terap. 7 no.6:10-16 N-D '63. (MIRA 17:7)

1. Iz allergologicheskoy laboratorii (zav. - chlen-korrespondent AMN SSSR prof. A.D. Ado) AMN SSSR.

USSR/Cultivated Plants - Grains.

Abs Jour : Ref Zhur - Biol., No 15, 1958, 44034

Author : Gushchin, I.V.

Inst : Krasnokutsk Selection Station.

Title : Hard Wheat and the Problems of Its Cultivation.

Orig Pub : Zemledeliye, 1956, No 4, 72-76.

Abstract : Observations of many years conducted by the Krasnokutsk Selection station showed that in sowing the fallow, both the yield and the quality of the hard wheat are not lower, and in some years are higher than when the worked beds were sown. Therefore, the generally accepted practice (sowing the wheat on the worked bed) greatly retards the more wide-spread sowing of this culture and provides an incorrect orientation to the problems of its cultivation.

-- V.A. Vnuchkova

Card 1/1

GUSEV, V.; GUSHCHIN, I. V.

Carry out the work of the training of specialists and the improvement of their qualifications in an organized way. Muk.-elev. prom. 24 no.3:3-6 Mr '58. (MIRA 12:9)

1. Otdel kadrov i uchebnykh zavedeniy Ministerstva khleboproduktov SSSR.

(Grain milling) (Grain elevators)

GUSEV, V.; GUSHCHIN, I.

Finish the training of specialists before the procurement of the 1959 grain crop begins. Muk.-elev.prom. 25 no.3:5-8 Mr '59. (MIRA 12:6)

1. Otdel kadrov truda i zarabotnoy platy Gosudarstvennogo komiteta Soveta Ministrov SSSR po khleboproduktam.
(Grain trade)

GUSHCHIN, Ivan Vasil'yevich; AFANAS'YEV, Aleksey Ivanovich; STEBAKOVA, L.N., redaktor; BODANOVA, A.P., tekhnicheskiy redaktor

[Chukchi National Area; a brief sketch of its history and geography] Chukotskii natsional'nyi okrug; kratkii istoriko-geograficheskii ocherk. Magadan, Obl.knizhnoe izd-vo, 1956. 96 p. (MLRA 10:8)
(Chukchi National Area)

GUSHCHIN, Ivan Vasil'yevich, kand. sel'khoz. nauk; FEDOROVA, Yu.A., red.; LEVINA, L.G., tekhn. red.

[Strong and durum wheats] Sil'nye i tverdye pshenitsy. Moskva, Izd-vo M-va sel'.khoz.RSFSR, 1961. 41 p. (MIRA 14:11)
(Wheat—Varieties)

BUDASOV, I.N., inzh.; GUSHCHIN, I.Ye., inzh.

Two-level superstructure made of plastics. Sudostroenie 28 no.11:44-45 N '62. (MIRA 15:12)

(Fibergalss boats)